

Student Name:

Student id:

Sect #: Ser#:

University of Bahrain

College of Information Technology  
Department of Computer Science

ITCS242: ASSEMBLY LANGUAGE PROGRAMMING

Quiz #4: Arithmetic Instructions

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**QUESTION ONE:** Assume that  $f1$ ,  $f2$ , and  $f3$  are predefined signed bytes. Write No more than 8 instructions to calculate the value of  $f$  as shown below. (Not allowed to change  $f1$ ,  $f2$ , and  $f3$ ). Define  $f$  as needed.

$$f = ((f1 * f2) \% f3) - (f2 * f2)$$

*f*    *word*        ?

*mov*    *al*, *f1*

*imul*    *f2*

*idiv*    *f3*

*movsx* *f*, *ah*                      ;*f* = *f1*\**f2*/*f3*

*mov*    *al*, *f2*

*imul*    *f2*                      ;*ax* = *f2*\**f2*

*sub*    *f*, *ax*

**QUESTION TWO:** What would be in the AX register after executing the following code?  
Your answer MUST be in HEXADECIMAL

MOV        AX, 7F3CH  
MOV        BX, 3D90H  
IMUL       BL

AX = **E6 C0**

**H**

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$$f = ((f1 / f2) * f3) - (f1 * f1)$$

***f sword ?***

```
movsx ax, f1
idiv f2
imul f3           ;ax = f1/f2*f3
mov f, ax         ;f = f1/f2*f3
mov al, f1
imul f1           ;ax = f1*f1
sub f, ax
```

**QUESTION TWO:** What would be in the AX register after executing the following code?  
**Your answer MUST be in HEXADECIMAL**

```
MOV    AX, 2F7EH
MOV    BX, 5AC0H
IMUL   BL
```

AX = **EO 80**

**H**